PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5573250

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
GEOFF HORRELL	02/19/2018

RECEIVING PARTY DATA

Name:	REUTERS LIMITED
Street Address:	THE THOMSON REUTERS BUILDING
Internal Address:	30 SOUTH COLONNADE, CANARY WHARF
City:	LONDON
State/Country:	ENGLAND
Postal Code:	E14 5EP

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16422674

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	113027.000087US5
NAME OF SUBMITTER:	KEVIN T. DUNCAN
SIGNATURE:	/Kevin T. Duncan/
DATE SIGNED:	06/14/2019

Total Attachments: 5

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PATENT 505526444 REEL: 049474 FRAME: 0409

504893581 05/01/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4940324

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
GEOFF HORRELL	02/19/2018

RECEIVING PARTY DATA

Name:	REUTERS LIMITED
Street Address:	THE THOMSON REUTERS BUILDING
Internal Address:	30 SOUTH COLONNADE, CANARY WHARF
City:	LONDON
State/Country:	ENGLAND
Postal Code:	E14 5EP

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15609800

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	113027.000087US4
NAME OF SUBMITTER:	KEVIN T. DUNCAN
SIGNATURE:	/Kevin T. Duncan/
DATE SIGNED:	05/01/2018

Total Attachments: 4

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PATENT 504893581 REEL: 04**9686** FRAME: 0**839**

ASSIGNMENT OF INVENTION

Whereas, I, Geoff HORRELL, of London, UK; have invented certain improvements in a MACHINE LEARNING-BASED RELATIONSHIP ASSOCIATION AND RELATED DISCOVERY AND SEARCH ENGINES ("Invention") and have filed a U.S. patent application therefore that has been assigned a filing date of May 31, 2017, and U.S. Ser. No. 15/609,800 ("Application"); and

Whereas, Reuters Limited, a British corporation organized and existing under and by virtue of the laws of the countries of England and Wales, and having an office and place of business at The Thomson Reuters Building, 30 South Colonnade, Canary Wharf, London, E14 5EP, UK, ("REUTERS LIMITED") desires to acquire the entire right, title and interest in said Application and in said Invention, and any additional United States or foreign applications and patents to be obtained therefor;

Now therefore, for good and valuable consideration, the receipt of which is hereby acknowledged, I hereby sell, assign and transfer unto said REUTERS LIMITED, its successors and assigns, the entire right, title and interest in said Application and in said Invention disclosed therein for the United States of America and all countries foreign thereto, including rights of priority under the International Convention of Paris (1883) as amended and the entire right, title, and interest in and to any and all patent applications, patents, continuations, continuations-in-part, divisionals, and reissues based thereon which may be filed or granted therefor in the United States or any foreign country.

I also agree that REUTERS LIMITED may apply for foreign Letters Patent on said Invention, and agree to cooperate with said REUTERS LIMITED and to execute without additional consideration any additional documents as deemed necessary by said REUTERS

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PATENT REEL: 04**9680** FRAME: 0**840**

113027.000087US4 TRGR(C&O) 007 US4

LIMITED to apply for or maintain patents or other legal protection for said Invention in any country of the world.

I hereby authorize and request the United States Commissioner of Patents and Trademarks to issue any Letters Patent granted upon said Invention set forth in said Application to said REUTERS LIMITED.

Executed this the	day of	, 2018, at	City
Country	_(city, country).	DocuSigned by:	
		Geoff Horrell	
As witnessed by:		Geoff HÖRRELL	
		Witness	

PTO/AIA/01 (06-12)

Approved for use through 01/31/2014. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	MACHINE LEARNING-BASED RELATIONSHIP ASSOCIATION AID DISCOVERY AND SEARCH ENGINES	ND RELATED
As the belo	pelow named inventor, I hereby declare that:	
This declar	ed to:	
	United States application or PCT international application number 15609 filed on 05-31-2017	800
The above-i	ve-identified application was made or authorized to be made by me.	
I believe tha	that I am the original inventor or an original joint inventor of a claimed invention in the applica	tion.
	acknowledge that any willful false statement made in this declaration is punishable under 18 trimprisonment of not more than five (5) years, or both.	J.S.C. 1001
	WARNING:	
contribute to (other than a to support a petitioners/a USPTO. Pe application (patent. Furt referenced i	er/applicant is cautioned to avoid submitting personal information in documents filed in a patern te to identity theft. Personal information such as social security numbers, bank account number an a check or credit card authorization form PTO-2038 submitted for payment purposes) is near that a petition or an application. If this type of personal information is included in documents subtractly such personal information from the documents before Petitioner/applicant is advised that the record of a patent application is available to the public on (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application function in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card as submitted for payment purposes are not retained in the application file and therefore are no	ers, or credit card numbers ver required by the USPTO omitted to the USPTO, submitting them to the after publication of the cation) or issuance of a he application forms
LEGAL NA	NAME OF INVENTOR	
Inventor: _	or: Date (Optional) :	/2018 2:03 PM CET
	application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accor viously filed. Use an additional PTO/AIA/01 form for each additional inventor.	npany this form or must have

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PATENT REEL: 049686 FRAME: 0842

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

- 1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
- 2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
- A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
- 4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
- 5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
- 6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
- 7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
- 8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
- A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT REEL: 04**9680** FRAME: 0**848**

RECORDED: 06/04/2019